



## External memory algorithms and data structures: dealing with **Massive Data**

Jeffrey Scott Vitter  
June 2001

ACM Computing Surveys (CSUR), Volume 33 Issue 2

Full text available:  pdf(829.45 KB)

Additional Information: full citation, a

Data sets in large applications are often too massive to fit completely inside the computers internal memory. This can be a major performance bottleneck. In this article we survey the state of the art in the design and analysis of external memory algorithms. We consider a variety of data access patterns and show how they affect the design of algorithms. We also discuss the impact of hardware on algorithm design.

**Keywords:** B-tree, I/O, batched, block, disk, dynamic, extendible hashing, external memory, hierarchical memo

**6** Draft Proposed: American National Standard—Graphical Kernel System

Technical Committee X3H3 - Computer Graphics

February 1984 **ACM SIGGRAPH Computer Graphics**, Volume 18 Issue SIFull text available:  pdf(10.07 MB)

Additional Information: full citation

## 7 Fast detection of communication patterns in distributed executions

Thomas Kunz, Michiel F. H. Seuren

November 1997

**Proceedings of the 1997 conference of the Centre for Advanced Studies on Colla**

Full text available:  pdf(4.21 MB)

Additional Information: full citation, a

Understanding distributed applications is a tedious and difficult task. Visualizations based on process-time diagrams and event tracers developed at the University of Waterloo. However, these diagrams are often very complex and do not have a non-trivial communication model.

## 8 Architecture of the IBM system/370

Richard P. Case, Andris Padegs

January 1978

Communications of the ACM, Volume 21 Issue 1

Full text available:  pdf(2.78 MB)

Additional Information: full citation, a

This paper discusses the design considerations for the architectural extensions that distinguish System/370 from them, and it describes the reasons and objectives for extending the architecture. It covers virtual storage, program input/output operations. ...

**Keywords:** architecture, computer systems, error handling, instruction sets, virtual storage

## 9 Pipeline Architecture

C. V. Ramamoorthy, H. F. Li

January 1977 **ACM Computing Surveys (CSUR)**, Volume 9 Issue 1Full text available:  pdf (3.53 MB)

**Additional Information:** full citation, references, citines, index terms

## 10 The structure of Cedar

Daniel C. Swinehart, Polle T. Zellweger, Robert B. Hagmann

June 1985

**Proceedings of the ACM SIGPLAN 85 symposium on Language issues in program**

Full text available:  pdf(1.79 MB)

Additional Information: full citation, a

This paper presents an overview of the Cedar programming environment, focusing primarily on its overall structure


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single programming language, also called Cedar. We will emphasize the extent to which the Cedar language, wit Laboratory (CS ...

11 A dynamic view-oriented group communication service

Roberto De Prisco, Alan Fekete, Nancy Lynch, Alex Shvartsman

June 1998 **Proceedings of the seventeenth annual ACM symposium on Principles of distributed computi**

Full text available:  pdf(3.91 MB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

12 Piranha: a scalable architecture based on single-chip multiprocessing

Luiz André Barroso, Kourosh Gharachorloo, Robert McNamara, Andreas Nowatzky, Shaz Qadeer, Barton Sano, Scott May 2000 **ACM SIGARCH Computer Architecture News , Proceedings of the 27th annual int**

Full text available:  pdf(191.10 KB)

Additional Information: [full citation](#), [a](#)

The microprocessor industry is currently struggling with higher development costs and longer design times that are especially ill suited for important commercial applications, such as on-line transaction processing (OLTP), wh constitute by fa ...

13 PELLPACK: a problem-solving environment for PDE-based applications on multi-computer platforms

E. N. Houstis, J. R. Rice, S. Weerawarana, A. C. Catlin, P. Papachiou, K.-Y. Wang, M. Gaitatzes

March 1998 **ACM Transactions on Mathematical Software (TOMS)**, Volume 24 Issue 1

Full text available:  pdf(25.30 MB)

Additional Information: [full citation](#), [a](#)


The article presents the software architecture and implementation of the problem-solving environment (PSE) PEI PELLPACK incorporates many PDE solving systems, and some of these, in turn, include several specific PDE solvi problems, Since a PSE should p ...

**Keywords:** PDE language, execution models, knowledge bases, libraries, parallel reuse methodologies, problem

14 Database concurrency control using data flow graphs

M. H. Eich, David L. Wells

June 1988 **ACM Transactions on Database Systems (TODS)**, Volume 13 Issue 2

Full text available:  pdf(2.42 MB)


Additional Information: [full citation](#), [a](#)

A specialized data flow graph, Database Flow Graph (DBFG) is introduced. DBFGs may be used for scheduling da intratransaction dependencies, and is constructed from the Transaction Flow Graphs (TFG) of active transactions

15 Interactive Editing Systems: Part II

Norman Meyrowitz, Andries van Dam

September 1982 **ACM Computing Surveys (CSUR)**, Volume 14 Issue 3


Full text available:  pdf(9.17 MB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

16 "Topologies"-----distributed objects on multicomputers

Karsten Schwan, Win Bo

May 1990 **ACM Transactions on Computer Systems (TOCS)**, Volume 8 Issue 2

Full text available:  pdf(3.83 MB)

Additional Information: [full citation](#), [a](#)

Application programs written for large-scale multicomputers with interconnection structures known to the progra structures implement a wide variety of functions, including the exchange of data or control information relevant program control, and so o ...

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17 [Optimizing data aggregation for cluster-based internet services](#)

Lingkun Chu, Hong Tang, Tao Yang, Kai Shen

June 2003

**ACM SIGPLAN Notices , Proceedings of the ninth ACM SIGPLAN symposium on P**

Full text available:  [pdf\(275.38 KB\)](#)

Additional Information: [full citation](#), [a](#)

Large-scale cluster-based Internet services often host partitioned datasets to provide incremental scalability. The paper presents the design and implementation of a programming primitive -- Data Aggregation Call (DAC) -- to reduction ope ...


**Keywords:** cluster-based network services, fault tolerance, load-adaptive tree formation, response time, scalab

18 [A dynamic multithreading processor](#)

Haitham Akkary, Michael A. Driscoll

November 1998

**Proceedings of the 31st annual ACM/IEEE international symposium on Microarchitecture**

Full text available:  [pdf\(2.67 MB\)](#)


Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

19 [Compiling nested data-parallel programs for shared-memory multiprocessors](#)

Siddhartha Chatterjee

July 1993

**ACM Transactions on Programming Languages and Systems (TOPLAS)**, Volume 15 Issue 3

Full text available:  [pdf\(4.17 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#), [review](#)


**Keywords:** compilers, data parallelism, shared-memory multiprocessors

20 [The family of concurrent logic programming languages](#)

Ehud Shapiro

September 1989

**ACM Computing Surveys (CSUR)**, Volume 21 Issue 3

Full text available:  [pdf\(9.62 MB\)](#)

Additional Information: [full citation](#), [a](#)

Concurrent logic languages are high-level programming languages for parallel and distributed systems that offer preserve many advantages of the abstract logic programming model, including the logical reading of programs a and the amenability to metaprogrammin ...

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